STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 6120

Tariff filing of Central Vermont Public Service)
Corporation requesting a 12.9% rate increase, to)
take effect July 27, 1998)

Docket No. 6460

Tariff filing of Central Vermont Public Service)
Corporation requesting a 7.6% rate increase,)
to take effect December 24, 2000)

PREFILED TESTIMONY OF
W. STEVEN LITKOVITZ
ON BEHALF OF THE
VERMONT DEPARTMENT OF PUBLIC SERVICE

March 9, 2001

Summary: The purpose of Mr. Litkovitz's testimony is to support the sections of the Department's proposed service quality and reliability plan for the Central Vermont Public Service Corporation that address: 1) system reliability standards; and 2) worker safety standards.

Prefiled Testimony
of
W. Steven Litkovitz

Q. Please state your name and occupation.

A. My name is W. Steven Litkovitz. I am an Electrical Engineer for the State of Vermont Department of Public Service (Department).

Q. Please state the primary duties of your present position.

A. My primary responsibility is to review the appropriateness of Vermont electric utilities' transmission and distribution operations, plans, and facilities.

Q. Please state your experience and qualifications.

A. I have held my present position since July 1993. From 1988 to 1993, I held the position of Electrical Engineer for the Massachusetts Department of Public Utilities (MDPU). At the MDPU I was responsible for engineering and financial analysis in numerous electric utility regulatory proceedings. Before working with the MDPU, I taught secondary level Physics and Electricity for two years. Previous to this, I worked as an Electrical Engineer in Training for the Cleveland Electric Illuminating Company and the Boston Edison Company. I received a Bachelor of Science in Engineering degree in Electrical Engineering from the University of Michigan in 1981, a Master of Science degree in Electric Power Systems Engineering from the Ohio State University in 1982, and a Master of Business Administration degree from the Ohio State University in 1984.

Q. Have you testified previously before the Vermont Public Service Board (Board)?

A. Yes. I have provided testimony to the Board in Dockets No. 5270-ROCH-1, 5750, 5760, 5822, 5857, 5980, 5987, 6043, 6033, 6053, 6083, 6110, 6142, 6158, 6252, 6217, and 6107.

Q. What is the purpose of your testimony in this case?

A. The purpose of my testimony is to support the sections of the Department's proposed service quality and reliability plan (SQRP) for the Central Vermont Public Service Corporation (CVPS or Company) that address: 1) system reliability standards; and 2) worker safety standards. The need for an SQRP generally, and the bases for the Board to impose service quality and reliability standards, are addressed by Department witness Deena Frankel.

Reliability Standards

Q. This section of your testimony considers the establishment of reliability standards as part of the proposed service quality and reliability plan (SQRP). Why does the Department advocate the establishment of reliability standards?

A. The assurance that electric power will be available to customers is of vital importance to Vermonters. Given the progress and changes in our society, Vermont has become ever more dependent on electricity. It is no exaggeration to state that our health, safety, and economic strength all depend on the reliable delivery of electricity. There is a desire for utilities to hold down costs. At the same time, it is important for utilities to provide high quality service. Establishing reliability standards provides a way to measure whether the desire to hold costs in check is resulting in a negative impact on system reliability.

Q. Has the Board accepted electric utility reliability standards in the past?

A. Yes. In Docket No. 6107, the Board accepted reliability standards for the Green Mountain Power Corporation.

Q. Has the Department heard from Vermont consumers on the issue of electric system reliability?

A. Yes. The most common concerns that we hear from customers on electric system reliability regard the frequency and duration of outages. Besides general irritation, consumers tell us of food spoilage, the inability to work from their homes, and lost business revenue. Consumers also express to us concerns that electric utility workforce reductions and restructuring could have a negative impact on reliability. We often hear from consumers that they are willing to pay a fair price for electricity, as long as their electric service remains reliable.

Q. Has the Public Service Board addressed the issue of electric system reliability and reliability standards?

A. Yes. At least as far back as 1959, the Board has required utilities to report on significant electric outages. More recently, in its Order in Docket No. 5854, the Board stated that

> [r]eliable electric service is essential to Vermont's households and businesses. Therefore, the integrity of the transmission and distribution network must be maintained or improved. The Board should set high reliability and service quality standards...
> Docket No. 5854, Order of 12/30/96, p. 97.

Also, on November 1, 2000, Public Service Board Rule 4.900, Electricity Outage Reporting, became effective. This rule requires that all of Vermont's electric distribution utilities record outages and report on system reliability in a uniform manner. The reliability standards that the Department proposes are consistent with, and have their foundation in, Rule 4.900.

Q. What are the reliability standards that the Department is proposing?

A. The reliability standards that we propose establish a maximum acceptable level of average outage frequency and average outage duration. The indices used to measure outage frequency and outage duration are those specified in Rule 4.900, i.e., the system average interruption frequency index (SAIFI) and the customer average interruption duration index (CAIDI). Specifically, SAIFI is a measure of the number of outages experienced by the average customer in a year, and CAIDI is a measure of the average length of outages, measured in hours, in a given year. We also propose that the SAIFI and CAIDI measurements be net of the effects of outages associated with major storms. Details on our proposed reliability standards can be found in Exhibit DPS-DLF-1, pages 10 to 11.

Q. What numerical standards for SAIFI and CAIDI does the Department propose?

A. The Department proposes a SAIFI standard of 2.3 and a CAIDI standard of 2.1 hours.

Q. How did the Department arrive at the numerical standards proposed above?

A. The Department examined the performance of CVPS in terms of SAIFI and CAIDI, net of major storms, for the years 1994 through 2000. The Department compared this performance against the performance of other Vermont utilities and against the performance of other utilities across the country. We found that, in general, CVPS's reliability performance during this period was satisfactory. Over this seven-year period there was some variation in performance. After discussions with CVPS personnel, we concluded that most of this variation was due to differences in the severity of weather during these years. The Department then chose, as a starting point, the SAIFI and CAIDI indices for the year that showed the worst performance, i.e., 1998. The underlying assumption was that the level of performance for 1998 was acceptable, and that which might be expected in a relatively tough weather year. To this level of performance, we considered factors that could either enhance or degrade the expected performance moving forward.

First, we noted that CVPS's distribution system vegetative management program is striving to reach an average trimming cycle of seven years. By 1998, the system had attained an average trimming cycle of about 8.7 years. Therefore, assuming that the vegetative management program progresses as expected, we would expect some improvement to reliability as the program gets closer to its goal of a seven-year cycle. Second, CVPS is actively seeking measures that would improve its system reliability. We expect that these efforts would bear some fruit and lead to improvements in reliability. Third, CVPS is continuing with its reconstruction program in which poles and wires that have reached the end of their useful lives are replaced with new equipment. This too, we expect, would lead to improvements in reliability.

Our expectations of improved reliability, however, are tempered by two factors. First, over the past several years, CVPS has taken steps to improve the accuracy by which it measures outage durations and the number of customers affected by outages. The same is true of other electric utilities in Vermont. Anecdotal evidence suggests that as utilities take care to report outages more accurately, SAIFI and CAIDI indices become worse for what otherwise would be the same level of reliability. Second, CVPS is installing increased numbers of oil circuit reclosers (OCRs) on its distribution circuits. The use of OCRs lowers the number of so-called nuisance outages, i.e., outages that require the intervention of a field crew, but which do not require the repair of distribution equipment. While a reduction in the number of nuisance outages is clearly an improvement to reliability, and is reflected in an enhanced SAIFI indice, this reduction in nuisance outages can degrade the CAIDI indice.[1] When we consider all of the above factors in the aggregate, we expect to see an improvement in the reliability indices. Using engineering judgement, we decremented the 1998 baseline SAIFI by 10% and decremented the baseline CAIDI by 5%. This results in the proposed standards of 2.3 for SAIFI and 2.1 hours for CAIDI.

Q. Did you consider anything else when setting the above SAIFI and CAIDI standards?

A. Yes. As discussed above, the Board in its Order in Docket No. 5854 stated that "[t]he Board should set high reliability and service quality standards." We believe that the standards proposed above are consistent with this Board Order. To the extent that these standards, in hindsight, prove to be unrealistically high or low, they can be adjusted for future years.

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[1]As an example of this phenomenon, consider a circuit, without an OCR, that over a calendar year experiences one nuisance outage with a duration of two hours, and one outage requiring the repair of poles and wires with a duration of four hours. For this year, the circuit would have a SAIFI (number of interruptions) of 2 and a CAIDI (average outage duration) of 3 hours. For this same circuit and year, now assume that an OCR was present that eliminated the nuisance outage. Under these circumstances, SAIFI has improved to1, but CAIDI has degraded to 4 hours.

Q. Are there other aspects to the proposed reliability standard?

A. Yes. Notwithstanding actual numerical performance, CVPS would identify, on an annual basis, the ten worst performing circuits on its system. CVPS would then identify the factors underlying the performance of these circuits and institute economically feasible measures to improve the reliability of these circuits. All circuits which have been identified would be monitored each year, over a five-year period, to determine the effectiveness of the improvement measures and to identify any further measures that may be required.

Safety Standards

Q. This section of your testimony addresses the establishment of worker safety standards. Why is the Department addressing worker safety standards at this time?

A. The Department is addressing worker safety standards for the same reasons that it is proposing reliability standards. Specifically, we believe that there is a desire for utilities to hold down costs. At the same time, it is important for utilities to provide their workers with a safe working environment. Establishing safety standards provides a way to measure whether the desire to hold costs in check may be having a negative impact on worker safety. Also, we believe that it is evident that worker productivity, which impacts a utility's cost of service, is a function of worker safety.

Q. Has the Board accepted electric utility safety standards in the past?

A. Yes. In Docket No. 6107, the Board accepted safety standards for the Green Mountain Power Corporation.

Q. What indices do you propose for measuring worker safety?

A. We are proposing two indices: Lost Time Incident Rate (Incident Rate) and Lost Time

Severity Rate (Severity Rate). Details on these indices are available in Exhibit DPS-DLF-1, page 10. Briefly, the Incident Rate is a measure of the number of accidents resulting in lost-time injuries. Severity Rate is a measure of the number of worker-days lost as a result of these injuries. Both indices are normalized per 100 worker-years to permit comparisons among different companies.

Q. What numerical standards do you propose for these indices?

A. We propose that the Incident Rate not exceed 2.5 and the Severity Rate not exceed 40.9.

Q. How did you arrive at these standards?

A. Incident Rate and Severity Rate are indices used throughout the electric utility industry to measure worker safety. In developing its proposed standards, the Department considered data on Incident Rates and Severity Rates, for the years 1995 through 1999, for CVPS, Green Mountain Power Corporation (GMP), the Electric Council of New England (ECNE) utilities, and the Edison Electric Institute (EEI) companies with under 1000 employees. Five-year averages for Incident Rate and Severity Rate for these companies and organizations is provided below:

	Incident Rate	Severity Rate
CVPS	3.5	83.2
GMP	2.1	26.8
ECNE	2.5	40.9
EEI	2.0	35.1

(The data shown above are five-year averages for 1995 through 1999).

After examining the data, we believe that setting goals for CVPS based on the average safety performance of New England's electric utilities is appropriate as an initial standard. Hence, the Department proposes Incident Rate and Severity Rate standards of 2.5 and 40.9 respectively.

Q. The data on safety performance shown above indicates that CVPS Incident Rates and Severity Rates do not compare favorably with that of GMP or the other organizations. Does this necessarily indicate that the Company's approach to safety is flawed or somehow lacking?

A. No. There are other factors that may be affecting the data. For example, conversations with CVPS staff indicate that, with respect to lost-time injuries that span more than one calendar year, CVPS may be reporting these data in a manner that is not consistent with that of the other organizations. Also, it can sometimes be difficult for a company to distinguish between an injury that is the result of events that occurred on-the-job, and injuries that may be due, at least in part, to a pre-existing condition. It is not clear that all companies report data on such injuries in the same manner. There may be other confounding factors. Because the effects that these factors may be having on the data are unknown at this time, the Department believes that, as a starting point, regional average performance for Incident Rate and Severity Rate are reasonable first standards. If, as more information becomes known, the standards are shown to be too high or too low, they can be adjusted for the future.

Q. Does this conclude your testimony?

A. Yes.